

ganic beings. As by a catenation of obvious and palpable facts we can trace back the history of this world to a state of fusion, if not of general nebulosity, so are we warranted in anticipating its future congelation, when old age shall have come over it as barrenness, and the gases shall have solidified by intensity of cold; when, it may be, the sun himself shall have grown dim, and nature, in so far as this system is concerned, have sunk in years; when the stupendous cycle shall have been accomplished. Then, and with humble reverence let the mighty acts of Supreme Omnipotence be spoken of, it may be that the eternal and ever-glorious Being which willed matter into existence shall pronounce on it the final doom of annihilation; and

— “the great globe itself
shall dissolve,
And, like the baseless fabric of a vision,
Leave not a rack behind.”

Or, what is far more probable, to judge from the universal analogies of all that is within our grasp, its elements shall again be called forth into light and life, and blaze forth the recommencement of the same system.

It is inconsistent with our notions of divine benevolence, to suppose that the human race shall be suffered to linger here upon earth, till such secondary causes as we have been considering should suffice to gather the last man to his fathers.

Tooting, Surrey, Dec. 1. 1836.

ART. VII. *Description of some singularly formed Orthopterous Insects.* By GEORGE ROBERT GRAY, Esq.

CYLINDRODES G. R. Gray.

HEAD small, of a long triangular shape, with the angles rounded. *Antennæ* (only a few basal joints remained in the specimen) apparently moniliform. *Labrum* small, shaped like a horseshoe. *Mandibles* small, strongly dentated. *Eyes* very small. *Palpi* with the last joint truncated, somewhat rounded, and slightly enlarging towards the tip. *Body* very long, cylindrical; the thorax occupying more than a third of its whole length, distinctly dividing into prothorax, mesothorax, and metathorax. The first is the longest, and cylindrical; the last two are nearly equal. *Abdomen* of eight joints, the last the largest, with the apex rounded, depressed and margined above, and without any caudal appendages. *Anterior legs* moderately strong, compressed and dentated in front; the *tarsi*

composed of two long slender joints without a claw. *Posterior legs* very short, and received in cavities on each side of the body. The cavities which receive the second pair of legs occupy the spaces between the mesothorax and metathorax; while the third pair are contained in the interval between the metathorax and the first joint of the abdomen. The legs are much compressed. *Femora* broad and armed at the apex, with a blunt spine, serving as a guide to the tibia, when in the act of being drawn beneath them. *Tibiæ* broad, compressed, and strongly armed with a short spine at the tip. *Tarsi* biarticulated, ciliated beneath, and furnished with a very small claw.

C. CAMPBELLII G. R. Gray.* (fig. 15.)

Smooth; head, forelegs, and last joint of the abdomen dark brown; thorax reddish brown; abdomen (except the last joint), and the two posterior pairs of legs, yellowish brown, with a tinge of darker colour.

Brought from Melville Island, on the north coast of New Holland, by Major Campbell; who informed me that he was unable to keep a single plant in his green-house on account of the ravages of this insect. It bores in their stems; and the withering of the plants alone betrays the secret work of the spoiler. Its form is admirably adapted for its mode of life. The power which it has of drawing its legs at pleasure into the cavities at the sides of the body enables it to assume a shape almost perfectly cylindrical; while the short blunt spine at the end of the tibia, being protruded, keeps the insect fast when it is engaged in boring. The name given by the colonists to this insect was the wireworm.

I may here mention that a species of the genus *Gryllostalpa* is also found in New Holland, but of a small size. Specimens have also been brought from Brazil, India, China, and Egypt.

The group to which I am now desirous of directing attention has been sadly neglected by entomologists, although it contains, as is here exemplified, some very singularly formed species, which are well worthy of notice. Those to which I am about to refer are included under my subgeneric name of



* Figured, but not described, in *Griffith's Translation of Cuvier*, pl. 131.

ANOSTO'STOMA.

Antennæ much longer than the body, multi-articulate, setaceous. *Labrum* large, crescent-shaped. *Head* very large, globose above, somewhat elevated into a ridge between the antennæ, with three ocelli at the base; the eye prominent, and somewhat crescent-shaped. *Mandibles* long, porrected in some, horizontal, strong, dilated and dentated at the tip. *Trophi* much exposed. *Mentum* long, somewhat narrow, but rather dilated near the tip. *Labial palpi* slender, basal joint short, second shorter than the third, which is much more slender than the others, with the tip membranaceous and dilated. *Maxillary palpi* very slender, long, with the tip ending in an acute spine; first and second joints equal to one another, the third and fourth also equal, the fifth rather longer than the fourth, with the tip membranaceous and slightly dilated. *Prothorax* as long as broad, with the margin somewhat rounded. *Abdomen* long, broad, with short caudal appendages, which are hirsute. *Legs* long, especially the hind ones; the *tibiæ* of all strong, spinous. *Tarsi* four-jointed. Apterous in both sexes.

A. AUSTRALÆ SIE G. R.
Gray. (fig. 16.) Ferruginous; abdomen variegated with yellow; legs yellow; tip of the mandibles black; those of the male porrect; of the female horizontal.



The two specimens examined were brought from the interior of Australia, about 300 miles up the country. I can give no information about its habits, as no remarks were sent with them. The species is allied to *Locusta spinosula* and *L. pùpa*; which form the genus *Bradyporus* of Latreille. Both are inhabitants of Africa. From the great length of the antennæ, and in possessing anal appendages, it appears to be allied to the crickets; but, as the insect has four joints in all its tarsi, I have placed it with the locusts.

17



In the same subgenus must be placed a species somewhat similarly formed, long since figured by Herbst (*Nat. freun. Berl. Neue Schriften*, vol. iv.), under the name of *Locusta monströsa*. (fig. 17.) This has never been referred to by any

entomologist since its publication. Its peculiarities are, that the mandibles (of the male) are horizontal and long, with the apex dentated and curved, so that the two ends meet; and the head is peculiar from having a wing-like projection on each side, with the margins dentated. This insect is supposed to come from Surinam; and I would propose to call it *A. Hérbstii*, in honour of its first describer.

Another very singular insect will be found in Stoll's work on Cigales, under the name of *Gryllon aquatique cornu*, which appears to come near the foregoing, though the form of the head is totally distinct. It is very long, truncate, with two long acute curved horns, projecting forwards over the lip: the latter is very large, pyriform, covering the mandibles: the palpi are filiform. For further characters, I must refer to the figure of this curious insect, with the name of *Hénicus Stóllii*. (*fig. 18.*)



18

Before closing the remarks on orthopterous insects, I would add some notes regarding the Phásmidæ, which have occurred to me since my *Synopsis* was published.

In that work, I have stated (note, p. 5, 6.) that I could not adopt M. Serville's arrangement of the Plerophasmàta into those with distinct or indistinct ocelli; but, as I then gave no reason for my rejection of it, I avail myself of this opportunity of doing so, as it might be satisfactory to M. Serville. I will take a few examples: those with distinct ocelli, in which division would come *Phásma Tithònus*, *acanthópterum*, *variegàtum*, and *Hòpei*; whilst amongst those which have none, and yet must be placed with the former, are *Phásma córnuceps*, *aràmtum*, and *acuticórne*. I may also observe that several of those which would not be considered by M. Serville to belong to the restricted genus *Phásma* also possess distinct ocelli: thus *Podocánthus Týphon*, *Xeróderus Kírbyi*, *Acrophýlla Titan* and *Encéladus*; also all the species of *Ctenómórpha*; while, on the other hand, *Acrophýlla chròmus* and *Phibalosòma Lepelletèrii* do not possess this character. I trust, therefore, that the above statement may justify my offering another arrangement of the family in my *Synopsis*.

I established the genus *Heteronèmia* (p. 19.) for the reception of an insect of this family, peculiar for the shortness of

its hind legs. But it has since occurred to me that that shortness may be owing to some accident; for the late Lansdown Guilding, in the *Linnæan Transactions*, has informed us that, "if it loses a leg by violence, this is reproduced, but of a smaller size, at the next change of skin" (my *Synopsis*, p. 11.); hence it is not improbable that this accident might have happened to the specimen which I examined. This reproduction is well known to occur with crabs and lobsters, and also with spiders.

An example of this phenomenon is well shown by a specimen of *Diapherodes*, contained in the Linnæan Society's collection; which has one of its hind legs short, while the other is of the natural size; proving, in this case, that one leg only was injured, and renewed on change of skin.

Acanthoderus scabrösus (p. 14.) I now believe (from a specimen kindly lent me by Mr. Templeton, brought from the Isle of France) to be the larva of a winged species, which has not yet been discovered in its perfect state. *Acanthoderus Dumerilii*, and even *A. spinösus* (p. 14.), with *Bactèria fragilis*, *acænosa* (p. 18.), and *spinosa* (p. 43.), may probably prove to be only larvæ.

I have offered these suggestions for the purpose of calling the attention of entomologists to an examination of the doubtful points, and, at the same time, to correct these supposed errors in my *Synopsis* of the family.

ART. VIII. *Observations upon the Boulders of Trap Rocks, &c., which occur in the Diluvium of Essex.* By J. BROWN, Esq., F.G.S.

IN the *Magazine of Natural History*, Vol. VIII. p. 349, 350., there is a synoptical table of the boulders of trap rocks, porphyries, granite, &c., which have been found in the gravel at Stanway, and other places within a radius of fifteen miles, in the county of Essex.

It is well known, that all rocks recognised by the above terms, from possessing characters peculiarly their own, and which are found, in some parts of the world, occupying extensive tracts of country, are of an igneous, or volcanic, origin.

But, although this fact is familiar to those who make this subject their study, it is not commonly known to persons in general, that the gravel which is used every day in repairing our common roads, and which is spread over a large portion of this and the adjoining counties of Suffolk and Norfolk, to a considerable depth, is in part, and in some localities largely,